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VOL. XI. No. 5. FEBRUARY 26, 1914

THE JOURNAL OF PHILOSOPHY
PSYCHOLOGY AND SCIENTIFIC METHODS

AN EMPIRICAL DEFINITION OF VALUE[1]

WHAT is the meaning of the term value and what part, if any, does value play in the real world? This is the question which philosophy seeks to answer under the heading, Theory of Values, or Axiology. And the answers which have been given are as diverse and conflicting as in most philosophical problems. The factions which have arisen in ontology are but transferred to the field of axiology. We find that one view regards value as an objective indefinable property, having no necessary connection with the existing world,[2] while another believes all values to depend upon being felt by somebody;[3] whereas a second pair of views deny at least one of these, as well as each other, yet agree that value is a more ultimate category than fact, and define fact in terms of value: the Fichtean and the instrumental theories.[4] Still another opposition holds between the position of Royce, that value is object of appreciation and not of definition,[5] and that of Bosanquet, which refuses to separate, hardly even to distinguish, value from rationality and reality.[6] These are simply the modern realistic, subjectivistic, voluntaristic, pragmatic, idealistic standpoints, applied to this particular problem. And if in the field of ontology there is no agreement of experts, it is hardly likely that there will be here. Thus at the outset it seems impossible to give an account of value which has the slightest prospect of general acceptance.

In such a situation it is our plain duty to seek the reasons for the disagreement. If we examine the interpretations of value which have been profered it appears that none of them contains, or is based upon, an unambiguous, non-circular definition. For example: suppose value is defined in subjective terms as, let us say, that which

[1] Read at the meeting of the American Philosophical Association, December, 1913.

[2] B. A. Russell, "Philosophical Essays," pages 4–15.

[3] W. M. Urban, "Valuation," Vol. III., page 9.

[4] H. Münsterberg, "Philosophie der Werte," 1er Theil, 4ter Absehnitt; J. Dashiell, *Philosophical Review*, September, 1913.

[5] "Conception of God," pages 247–265.

[6] "The Principle of Individuality and Value," Chapter 8.

gives pleasure. This is no real definition, because it does not account for the valuableness. Why should pleasure confer value? It is obvious enough that here is a vicious circle. Or suppose we say, value is whatever increases life. The statement may be true, but it assigns no ground for the ascription of the predicate "good"; for why should increase of life be good? Similar criticism may be made of views which make value primary and define being in terms of value. They do not increase our knowledge of what value is: they rather give up the real problem by pronouncing the category indefinable. Those who allege indefinability, however, do not, so far as I know, make any thoroughgoing attempt to consider all possible definition. It is, in general, impossible to prove a given term indefinable: such a universal negative can have only inductive warrant. The most we can say is that no definition yet given is sufficient. And where no sufficient definition is, there conflict will break out, because liberty of interpretation is more or less unrestricted. The only way to deal with this state of affairs is to search further, until we can furnish a non-circular and positive definition. And for this no method is satisfactory but to trace out the common structure of all the valuable objects known to our experience, *i. e.*, to treat value as a "concrete universal" rather than an abstract one, and to obtain a definition in terms of the specific situations in which values are found. From such a definition alone may we learn something of the status of values in reality.

It is, no doubt, to a certain extent absurd to attempt a problem of this size and importance in a brief paper. Only the roughest kind of a sketch can be given with many gaps in the evidence. A first essay in this direction must be imperfect; but let us hope that its errors will be corrected, and the way be pointed to further results.

The objects which are considered valuable, good or bad, worthy of approval or disapproval, are generally acknowledged to belong to at least one of the following six classes: (1) those which "satisfy immediately any *fundamental* instinctive sense-tendency" of a living organism,[7] (2) economic commodities, (3) esthetic or beautiful objects, (4) moral conduct, (5) religious objects, (6) intellectual values. This classification differs from Urban's, though not, I think, disagreeing with it; his analysis being psychological and genetic while ours is of objects rather than psychoses, following the scheme of G. Fonsegrive.[8] Let us consider these classes in turn.

[7] W. M. Urban, "Valuation," page 192. Also, "there are certain fundamental connative tendencies, such as hunger, sex, expression of bodily energy, etc., the satisfaction of which gives immediate and unconditional . . . worth" (*ibid.*). Professor Urban calls these "condition worths," since their value is dependent upon the condition of the organism.

[8] *Revue Philosophique*, Vol. 69, page 553, and Vol. 70, page 43.

1. The first class contains, in the main, objects of sensual pleasure, and *prima facie* their value is dependent on some organism. We may fairly say that pleasure connotes normal, unhindered functioning of a living organism. If the value of these objects lies in the pleasure they afford, then their value lies in the fact that they contribute to the normal, unhindered functioning of the organism. Now such behavior of the organism is an essential part of its own continued life. The definition of life is not yet furnished by biology, but some of its essential characteristics are agreed upon, and one of them is that a living organism tends to perpetuate its own life, to prolong it. That is, a living organism tends to perpetuate its own normal, unhindered functioning. The objects of instinctive sensual desire, when attained, help to fulfil that tendency. When the organism is conscious of them, it feels them to be good (or if painful and thwarting the tendency, bad). But even if it were not conscious, as perhaps some lower organisms are not, any object that called out a reaction agreeing with this fundamental tendency of an organism would be to that organism a good. What an amœba ingests may be to the amœba a good, though the amœba takes no conscious delight in it. The specific *quale* of this type of value lies in its helping to fulfil a certain fundamental tendency resident in the organism.

2. Economic values. In the field of economics, "value [of an article] is always and only the power to command other desirable things in peaceful and voluntary exchange."[9] A value is distinguished from a utility. The latter has a certain kind of value in that it is useful to the one who wants it; but it is useful merely because wanted, and not as having any power of exchange for other utilities. Hence a utility might come under the first class of values, the "condition worths," whereas value as used in economics forms a distinct type, owing to its possessing exchangeability. Now there are two laws that apply to value in this field—the law of the threshold and the law of diminishing values. Important though they seem, however, they are for our purposes inessential. The law of the threshold states that there is a certain least amount, and a certain greatest amount, of a given article, beyond which value disappears. As Urban has shown, this is a psychological law pure and simple, analogous to Weber's and Fechner's laws; it applies to utility as well as to value. "This principle is an expression of the fact that the power of an object to call out a feeling of worth . . . depends not upon the object alone, but upon the feeling or connative disposition of the subject as well."[10] The familiar concepts of the "existence-minimum" and "marginal utility," and the whole field of this

[9] T. N. Carver, "The Distribution of Wealth," page 3.

[10] "Valuation," page 146.

law, do not then constitute part of the *differentia* of value. The same may be said of the law of diminishing values. It, too, has a psychological origin though not reducible to terms of stimulus and sensitivity. "It is a phenomenon of limitation of judgment capacity, rather than of capacity of stimulation."[11] It is not because economic values are values, rather than utilities, that these laws hold, but because, like utilities, they are relative to human appreciation. What, then, are the positive *differentiæ* of economic values?

One specific property of value is exchangeability; another is that value is a function of scarcity.[12] The less gold there is the greater is the value of gold; if there were an infinite amount of it, it would have no value. In other words, value exists only when the amount of the valuable article is limited; and the more it is limited, the greater the value (up to the psychological threshold). If we may call up a simile to help us interpret this fact, it is like the pressure of a gas, which exists only when the gas is confined, and increases as the volume is diminished. Indeed, the analogy between value and pressure is rather close. If a certain book has great value to me, I am willing to pay high for it; it dislodges from my purse an amount of money proportional to its value. So the pressure of a gas is measured by the amount of mass it dislodges. Again, as pressure of a gas means tendency to expand and occupy the space filled by other physical objects, so economic value of an article means a tendency for it to take the place, by purchase or exchange, of other articles. The fact that the valued article is desired by somebody makes this tendency no mere figure of speech, but a psychological, or even a physical, fact. Value here seems, then, to mean a real potentiality or tendency of the economic object to come, by replacing another object, into the possession of somebody who desires it. If every one has it, if there is no scarcity, there can be no desire, and the tendency, because already fulfilled, does not exist; hence scarcity is necessary to value. Now it follows that economic values tend to do two things: they tend to enhance the life of the prospective buyer by ministering to his wants, and they tend to enrich the economic life of the community by promoting trade. The former is not peculiar to value, since utilities do the same thing; the latter *is* peculiar to value, and must constitute the result we are seeking. A commodity has economic value because it tends to be exchanged and thus to perpetuate or increase the economic life of the community. From the point of view of that economic life it thereby becomes a good, because it contributes to that life. This result is similar to the one we obtained from the study of the first class, the simple "condition worths." The

[11] W. M. Urban, *op. cit.*, page 173.

[12] T. N. Carver, *op. cit.*, page 12.

value of the valuable object consists in contributing to an already existing tendency, or group of tendencies.

3. Esthetic or beautiful objects. The problem of a definition of beauty is extraordinarily difficult; there is no generally accepted solution. There are, however, certain fairly well-established attributes of beauty, and we must simply do the best we can with these.

Beautiful objects seem to be of two kinds, roughly distinguished as classic and romantic. The former have beauty of form and structure; their elements display harmony, economy, or in a phrase whose significance is even greater than its triteness, unity in variety. It was the type most admired in classical antiquity. The second, romantic beauty, may be defined as laying stress "on the idea of significance, expressiveness, the utterance of all that life contains; in general, that is to say, on the conception of the characteristic."[13] It is "accompanied by the craving for free and passionate expression."[14] This is preeminently modern, connected with the modern interest in personality, man, and the subjective generally. The play-impulse, "semblant modes," imagination, freedom, are expressions of this type. The two classes are related somewhat as static and dynamic. The distinction is not confined to works of art, but extends to natural objects as well. Human beauty, for instance, as Plato saw, divides approximately into these two kinds; feminine beauty being in the main static, a beauty of repose, of symmetry and composition; masculine being rather dynamic, active expression of inner potency in deeds, virility. Let us now consider the nature of each type.

Unity in variety appears superficially to be the most meaningless of phrases. A heap of gravel has unity, being one heap, and variety, having many pebbles of different sizes and shapes; but it has no beauty. This, however, is not unity in variety, but unity and variety. The preposition "in" signifies that each implies the other. A true case would be one in which each particular element clearly contributes to the being and character of the rest, as in an arch or a living organism. It is this quality of mutual support and contribution that characterizes the classic type. Though the type is static, it is not inert, for each element has a positive and discernible effect on the others. Just as in the science of statics equilibrium is by no means *mere* absence of motion, but rather a balance of pressures, attractions, or repulsions, so here then is, if anything, more than if it were dynamic. We may commend this fact to those philosophers who are inclined to condemn the static as being lifeless and unproductive: *e. g.*, using "static absolute" as a term of reproach, refusing to

[13] Bosanquet, "History of Æsthetics," pages 4–5.

[14] *Op. cit.*, page 5.

believe in substances, or anything but process. The ancient doctrine of repose was, indeed, far from being a counsel to death. Now it is in this mutual support that we find the clue to the ascription of worth. Each part of the beautiful object is implied by the others; each part is thus the fulfilment of the meaning which the others tend to express,[15] but can not by themselves fully express. The whole object is the fulfilment of the tendencies resident in each of its parts; from the point of view of those parts, then, it has worth or value. This is analogous to the result obtained in economic values and sensual values. But because the value here is wholly between the object's own parts, it becomes intrinsic and the beautiful object's beauty lies wholly within itself. Hence it is independent of the particular observer of practical results, or of mere liking.

Romantic beauty seems to be quite different. The mutual determination of part by part, as in a statue or a painting, is subordinated to "free and passionate expression." The contrast is analogous to that between determinism and freedom. Romantic beauty is measured by the depth, sincerity, intensity of emotional appeal; not structure, but function, the dynamic side, is most in evidence. I do not, of course, mean that structure and form are absent, but—as seen in the modern and mainly romantic art of music—they are present as a necessary background rather than as the immediate source of the esthetic thrill. What is it, then, that moves us to say of romantic beauty, "it is good"? Is it not that it reveals depths within the personality which are throughout life struggling for expression? I do not think we should consider music, the novel, the drama, more than merely pleasant if they did not show us, however inarticulately, the nature of our own personal life.[16] Personal life is always endeavoring to express itself: romantic beauty succors and fulfils that endeavor. But such endeavor need not always be personal. The wild beauty of a winter storm, of a volcanic eruption, or any dynamically sublime event in nature, reveals hidden and restrained forces of nature as free and unconstrained. We may then venture to define romantic beauty to be the portrayal of an object as realizing, without restraint, what its inner nature tends to accomplish. The realization is good from the point of view of the object. And because the value

[15] Thus, it is said of Bach's works in the polyphonic style that "they have that delicacy of inner adjustment more usually found in the works of nature than in those of man; their melodies grow out of their motive germs as plants put forth leaves and flowers; their separate voices fit into one another like the crystals in a bit of quartz; and the whole fabric of the music stands on its elemental harmonies as solidly as the mountains on their granite bases" (T. W. Surette and D. G. Mason, "The Appreciation of Music," page 33).

[16] *Cf.* Surette and Mason, *op. cit.*, page 203, remarks on the universality of Beethoven's genius.

lies in the relation of the object to its own inner tendencies, the beauty is intrinsic and independent.

At this point it may be well to meet a certain natural criticism. We shall probably be accused of speaking in mythological terms. Is there any such "inner nature," "tendency to express itself," "endeavor," etc., as we have spoken of? Nominalists do not like these words. But it is not necessary to prove that they are objectively true. "In esthetic enjoyment, we do not distinguish reality from semblance."[17] In romantic art, the object is portrayed as expressing what we *feel* to be the inner nature of the object. The question of illusion is irrelevant. In reality this objection is another form of the vulgar objection to novel-reading on the ground that the novel is only fiction.

On the psychological side of esthetics we find a parallelism which confirms the above. "The diffusion of stimulation, the equilibrium of impulses, life-enhancement through repose!—this is the esthetic experience."[18] Or as Fonsegrive says, "*Toutes les valeurs ésthetiques correspondent à des accroissements, toutes les non-valeurs à des diminutions de vitalité intérieure.*"[19] Looking at the matter genetically, Urban finds that the well-ordered object of civilized art must, indeed, minister to this equilibrium of impulses, this balance and repose of connative tendencies; as otherwise it could not have been developed. In the absence of such repose, some one impulse would prevail and there would follow a practical attitude, desire, or judgment.[20] ". . . the formal element of order is significant only as a means of securing repose in the object (or content) which, when unesthetically experienced, is the object of explicit desire and judgment" (p. 229). In fact, as Urban shows, this ordering and balancing is a case of a general psychological law, that of complementary values. Now this simply means that the impulses combine into a whole such that each member affects and influences the others. It is quite analogous to the definition given of classic beauty, though couched in terms of impulses and feelings.

4. Moral values. "Our moral judgments are ultimately judgments of value,"[21] and "by moral value we generally mean the particular kind of value which we assign to a good character" (p. 138). Notwithstanding the vast amount of conflict and disagreement between ethical systems, we may deal with this province briefly. For the disagreements do not so much concern the concrete description of

[17] Baldwin's *Dictionary,* Art. "Æsthetic."

[18] E. Puffer, "The Psychology of Beauty," page 55.

[19] *Revue Philosophique,* Vol. 69, page 572.

[20] "Valuation," page 225.

[21] *Cf.* Rashdall, "Theory of Good and Evil," page 137.

a good character as the ultimate metaphysical formulation of it. In practise there is a fair agreement that it is a character which tends to preserve, so far as possible, the acknowledged values of life, for society and for the individual. Its own value would then lie in its contributing to personal life as a whole. It has been found impossible to define a good character in abstraction from the concrete values of personal life; even Kant's autonomous will must act so that its maxim could, in actual life, become a universal law. And it could become so only by ministering to the welfare of society and the individual.

5. Religion and morality should hardly, I think, be identified, even though they may in the long run be inseparable; but the religious values seem to me to be of the same character as the moral values. Perhaps the definition of religion which assumes the least is that of Höffding: "the fundamental axiom of religion, that which expresses the innermost tendency of all religions, is the axiom of the conservation of value."[22] While one may personally believe that religion is much more than this, it does not seem possible that it could well be less if it is to be a worth-attitude rather than an ontological one. But even from this minimum of character we may see why religion has itself the highest of all values to the devotee. It is because it appears to him as that which contributes to the maintenance of all the values, whether in this life or another one. There seems to be no difference between this type of value and the moral, except one of degree: the religious being the greater and being guaranteed by a higher power than human will. And both the religious and the moral values are those which assist in promoting those more ultimate goods which persons inevitably endeavor to secure.

6. Intellectual values. To most human beings, the truth about things is a value: the proof is that they try so hard to get it. As we might expect, philosophers differ on the nature of this value. One party holds that it is relative to other and practical values; a second party, that it is instrinsic, good for its own sake. If the former view is correct, the value of truth is analogous to that of morality; it consists in ministering to increased life. If the latter view is correct, truth is similar to an esthetic value. Here we are met by another conflict of views. Non-pragmatists are generally either idealists or realists; the idealists declare truth to be a coherent *system* of propositions, the realists believe that its essence lies in its correspondence with external reality. On the idealistic view we have in the value of truth the same structure as in that of classic beauty: a system of mutually determining parts, harmonious, economic. On the realistic view truth consists in the expression of what

[22] "Philosophy of Religion," page 215.

is real in terms of human knowledge. The value of the truth lies in its trueness, *i. e.*, in the fact that it expresses to us the nature of reality. This is comparable to romantic beauty, which we found to consist in the expression of the inner nature of an object. The search for truth by us human beings is the endeavor to get this reality expressed in our experience. Truth is the fulfilment of that endeavor after expression, and its value must then be said to be definable in the same terms as romantic beauty. Oddly enough, the usual view is that idealism is nearer to romanticism than is realism: but that is, I think, not true of modern objective idealism. It is akin to classicism, system, order; while realism seeks the expression of the tendency to independence and freedom, and is thus essentially romantic.

The material for a definition of values is now at hand. We have found in all cases that the value of an object consists in its helping to complete or fulfil some tendency already present. In most of the cases that men consider values, it is the fulfilment of tendencies in the human organism, physical or conscious. Hence values are generally considered dependent on some personality.[23] But that would seem a hasty generalization. The elegance of a mathematical proof—a form of classic beauty—consists in the economy of its structure, the mutual determination of its parts; and it continues just as elegant when no one reads it, for it is constituted by objective logical implications. The beauty of the proof is universally valid and independent of changes in the percipient; which is what objectivity means to subjectivist and realist alike. And it is in unconscious accord with our impersonal definition that we say sunlight is good for a plant, or injurious to a photographic negative. If we do not speak thus of inorganic nature, it is because persistent and dominant tendencies, such as appear in living things, do not there obtrude themselves upon our attention. We are so used to thinking of nature as a cut-and-dried system, so intimidated (shall I say?) by the triumphs of the exclusive scientific attitude, that we dare not find an analogy between our own values and the processes studied in physics. But there is, I believe, a close analogy. We saw it explicitly in the economic values, and the other cases showed the same logical structure. Given any tendency, in dead nature, in living organisms, in conscious minds, which presses toward a certain end: any other tendency that furthers this is for it a good, and any that resists it is for it bad.

May we here claim to have deduced the notion of value from purely factual categories? The specific *qualia* of the good and bad were empirically found to be furthering and hindering of some tendency. Now this statement is couched wholly in terms other than

[23] Höffding says: "It is personality which, in the world of our experience, invests all other things with value," "Philosophy of Religion," page 279.

those of value; yet we may be accused of a certain vicious circle. For, to say that the furthering of a tendency is to that tendency a good is to imply that the *fulfilment* is good; and why, after all, should it be so? Have we really deduced the notion "good" from the notion "fulfilment"? The accusation certainly looks plausible, that we have simply begged the concept "good," and left value, or at least the core of value, undefined.[24] Now, even were this the case, our definition should still have much utility, since it reveals certain characters intrinsic to value; and this knowledge is indispensable to any metaphysics on the subject. That within these characters might lie an indefinable, inaccessible core, could not deprive the definition of truth or of usefulness so far as it goes. But to me, I admit, the above formula seems to have laid bare the very innermost core of value; and for the following two reasons. (1) There is, so far as I can see, no further namable, identifiable *quale;* to allege it seems to me an unwarrantable mystification, setting up an unknowable from which nothing can be learned. "Good" is, no doubt, a *different* notion from "fulfilment" and therefore appears to contain something not authorized in the content of the latter notion. But (2) that is because "good" is the *relation between* the fulfilment (or furthering) and the tendency; a relation uniquely determined, and sufficiently determined, by the two. And because of this unique and sufficient determination, we have, I think, a right to say that the notion of "good" is not begged, but deduced. Accordingly, I venture to offer the above definition as the only non-circular, positive one that I have yet seen. The objections which common sense perhaps feels, to any such claim of deduction of value from fact, would be perfectly sound, did fact not contain the category of tendency or potentiality. Without that category, we may admit, there would be a chasm between value and fact. A world whose only predicates were those of actual existent terms and relations, whether permanent or changing, would be a world in which no values could arise. We could say that so and so is, was, or will be, but we could say no more. But potentiality implies an end; though not necessarily in the teleological sense. And potentiality is a category in good use in the field of statics, theory of heat, and other branches of physics. Now it is in this region of the factual, and in this alone, that the notion of good or bad, of value, can arise.

There is, however, a further objection to our definition, drawn from its consequences, to leave which unmentioned might seem the concealment of a fatal weakness. Our formula appears (and I think the appearance is truth) to commit us to a merely quantitative view. If a value consists in contribution to the fulfilment of a given tend-

[24] I owe this objection to Professor Urban.

ency, then the only sense in which one value can be greater, better, or higher than another, is in contributing more powerfully to a given tendency, or in contributing to a greater number of tendencies. To many this would appear a *reductio ad absurdum;* for it is widely believed that Hedonism has fallen before an analogous objection, and that values, like pleasures, are qualitatively higher and lower. But, in the first place, appeal can hardly with justice be made in philosophy to any doctrine, in order to confute another. The qualitative view, like most philosophical views, can not be regarded as established by consensus of experts; and if empirical evidence conflicts with it, and shows value to be a quantitative affair, the presumption would seem to be against the qualitative view. But further, the appeal to qualities is, in general, the appeal to the indefinable. It is not a source of strength, but of weakness; a giving up of problems, or a refusal to analyze. We wish to know *why* a good moral character is better than a good dinner. Our view indicates that it is because the good character contributes to a vastly greater number of tendencies, in living organisms, than the dinner *per se* can do. That which is the more inclusive or the more intense is, other things being equal, the higher and better. This sort of account explains the degree of a value while the qualitative account explains nothing. But a detailed working out of this statement's consequences for the theory of the scale of values is here not possible.

Do values then exist? Yes, if they are felt; just as much as gravitation, pressure, collisions exist. They may be physical tendencies, or any other kind; so long as they are verifiable as aiding or hindering other tendencies of any kind whatsoever. There is no gulf between value and fact. Let it not be objected that we have made value so ubiquitous as to lose all significance. One might as well say that gravitation is meaningless because it applies to all bodies. Of course, not all imagined values are real tendencies. A man's own wealth may be to him an imaginary value, but without any concrete evidence of its potency. But though this holds of particular and lesser values, it is of diminishing force with the greater and more universal values. Here we come in sight of a metaphysical consequence of our definition which shows it to be, I think, a fertile and suggestive one.

Some values are higher, more inclusive, than others. Thus, a person has great value, because by foresight he is able to further so many tendencies; those of the physical organism, of intellect, morality, art, etc. We may imagine a super-personal value which will include a much greater potentiality of this sort; even an all-inclusive value which will tend to fulfil all the tendencies in the universe. The

more inclusive this value is, the fewer tendencies are left outside which might oppose its complete realization of itself. If it were all-inclusive, there would be nothing left to prevent its passing from potentiality to actuality. A perfect value, or a perfect being, consequently, must be actual—as the ontological proof said. But the question remains, is there any empirical evidence of such an all-inclusive or perfect value, even as merely potential? Does the ideal of perfection show itself as a real tendency, working in experience? Religious people claim that it does so, in their own personal experience. It is outside our province to discuss this question. But it is, I think, a wholly empirical one. The definition of value obtained above would seem to show that if such an ideal is verifiable as a working tendency in our lives, the ontological proof would hold. Kant's refutation of that proof was based on the assumption, inherited from Descartes, of a gulf fixed between subject and object, value and fact. But our definition has crossed that gulf; or rather has shown that there is no gulf. Something of the fertility of the definition lies, I believe, in that closure of a long-established breach.

One more application of the definition may be made. At bottom, all reasoning, thinking, proving, knowing, is based upon certain principles which carry with them their own evidence. Such are the axioms of logic, the axiom that reality is accessible only in experience, etc. These are accepted because they are "deemed worthy." They alone make knowledge possible, and thus contribute to our desire for knowledge. They are to knowledge what God is to the religious devotee: they are all-inclusive cognitive values, grounding all particular judgments and their connections. Because they ground *all* knowledge, there is nothing to contradict them; their mere appearance guarantees their truth; they are, to us, methods of immediate insight. Their value is then more than potential, and they become truths. This is not the case with any less fundamental propositions, however useful they are; for the latter do not ground all knowledge, and some other propositions might contradict them. The fundamental axioms of all knowledge constitute a special case, like the perfect being, where value implies objective realization.

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TWO FACTORS WHICH INFLUENCE ECONOMICAL LEARNING[1]

THE formation of a new habit—which is the process of learning—offers many problems to the experimental psychologist. Recently there has been considerable discussion as to the proper distri-

[1] Read before the Atlanta meeting of the American Association for the Advancement of Science, in Section H. (One correction due to information more recently supplied me by letter has been made with reference to Pyle's work.)